Jahangirnagar University
Department of Computer Science and Engineering
PMSCS Program, Spring-2020

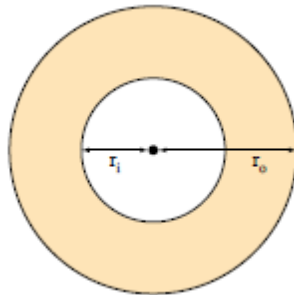Course Code: **PMSCS-602**   Title: *Object Oriented Programming*

Time: **1.5 hrs**   Marks: **30**

Answer any **THREE** of the following questions.

1. a) Differentiate between object declaration and object creation in Java.	2
b) Explain the impact of three visibility modifiers (private, public, and protected) on class members considering Inheritance.	3
c) Characterize abstract class and abstract method in Java.	2
d) Write a program that determines the number of days in a given semester. Input to the program is the year, month, and day information of the first and the last days of a semester.	3

2. a) Differentiate between *explicit* and *implicit* type casting with example. 3

b) Write a program that computes the area of a circular region (the shaded area in the diagram), given the radii of the inner and the outer circles, r_i and r_o, respectively. 5

We compute the area of the circular region by subtracting the area of the inner circle from the area of the outer circle. Define a Circle class that has methods to compute the area and circumference. You set the circle's radius with the *setRadius* method or via a constructor.

c) Write down few guidelines in determining the visibility of data members and methods. 2

3. a) Explain few pitfalls to be careful while using loops with example. 3

b) At the end of movie credits you see the year movies are produced in Roman numerals, for example, MCMXCVII for 1997. To help the production staff determine the correct Roman numeral for the production year, write a program that reads a year and displays the year in Roman numerals. 5

Roman Numeral	Number
I	1
V	5
X	10
L	50
C	100
D	500
M	1000

Remember that certain numbers are expressed by using a "subtraction," for example, IV for 4, CD for 400, and so forth.

c) How can you organize classes into a package? Illustrate the process of creating a package name *myutil* that includes a class names *Fraction* class. 2

4.	a) Define a class to represent a bank account. Include the following members: 	5
	Data members: Name, Account number, Account Type, Balance;
	Member functions: to assign initial values, to deposit an amount, to withdraw an amount after
	 checking the balance, and to display name and balance;
	Write a main function to test the functionality of the class.
	b) "The reserved word this can be used in three different ways" – explain with examples.	3
	c) Explain two types of exception throwers with example.	2